Live Video Digitizer

The "Live Video Digitizer" (LVD) is a dramatic new option available from Silicon Graphics. By adding a plug-in board and VCR or video camera cabling inputs to any of the Silicon Graphics POWER Series, it is now possible for the first time to mix live color video images operating at a full 30 frames per second with high-resolution real-time 3D graphics in a window on the same superworkstation. Moreover, the integration of the video image into the workstation's graphics system is so complete, that the software can exercise standard graphics functions on the live video imagery. With this unique option, the POWER Series is now an even more POWERful tool to meet the demands of applications like visual simulation, image processing, and animation.

Features

- Live video digitizing and display at up to 30 frames per second
- A price/performance choice between two configurations, each capable of displaying the video image at a range of speeds—from a single frame to a maximum of either 15 or 30 (12 or 25 for PAL) frames per second
- Inputs for RGB and composite video at NTSC and PAL resolution
- Software control of hue, saturation, brightness, and contrast
- Programmable sampling rates from 10-20 MHz for selecting the number of pixels per line in the resultant video image
- Ten software-selectable RGB anti-aliasing filters for ensuring the highest quality image possible for the given sampling rate
- Input look-up tables (LUTs) for color mapping
- Full integration with 4Sight window manager
- Automatic triggering for single frame capture by devices external to the workstation

Performance

The LVD's ability to digitize video signals in real-time combined with the POWER Series' graphics architecture gives users the means to combine video images and 3D graphics in ways never before possible. The LVD consists of a video digitizer, three circulating video frame buffers, and a high speed pixel bus interface. This unique architecture guarantees that as the live video signal is imported into the workstation, the resultant image maintains temporal and spacial fidelity to the original. In other words, the LVD cannot overwrite, "tear," or otherwise distort the video image.

The POWER Series' pixel bus provides the bandwidth necessary to concurrently support live video and 3D graphics operations. The LVD transfers video images to the graphics frame buffer at a rate of 16M pixels per second, leaving power to spare for 3D graphics operations.

The LVD allows the application software full control over the superworkstation's graphics processing power. Priority may be given to video, graphics, or divided evenly. Furthermore, any rectangular portion of the video image may be selected for transfer to the graphics frame buffer.

Frame Grabbing

The LVD can be programmed for various video input rates, including live video, single-frame grab, or at any speed in between. Two versions of LVD are available, one supporting up to 30 frames per second, and another supporting up to 15 frames per second. Both versions of LVD provide external trigger inputs, allowing an external device outside the workstation to control the frame capture.

Flexibility

The image can be placed anywhere in the workstation's frame buffer which results in the video window appearing in the corresponding portion of the screen. The application has full access to images once they are in the frame buffer via the IRIS Graphics Library.

RGB inputs allow the user to maintain a high quality image for both NTSC and PAL scan rates. For convenience PAL or NTSC color decoders are also provided.

Capture Resolution

NTSC (RS-170A):	
lines:	500
pixels/line:	512-1024
PAL (CCIR-624):	
lines:	600
pixels/line:	512-1024

Inputs

Red, Green, Blue: Analog RGB color 0.5 to 2.8 V p-p

Sync: Three choices of sync source are, stripped from color encoded composite video, stripped from the green input, or from separate composite sync (0.5 to 5 V p-p)

Composite Video (NTSC or PAL): Analog color encoded composite video 1.0 V p-p

All the above inputs support loopthrough.

Trigger Inputs: Current and next frame, 200 mV sensitivity, + or −7 V input range

Corporate Office
2011 N. Shoreline Boulevard
Mountain View, CA 94043
(415) 960-1980

Federal Sales Division
Bethesda, MD
(301) 564-1980

Regional Offices
Mountain View, CA
(415) 960-1940

Farmington, MI
(313) 478-5446

Dallas, TX
(214) 788-4122

Waltham, MA
(617) 891-8100

For additional U.S. sales office locations call (800) 338-6272

Canadian Office
Toronto, Ontario
(416) 674-5300

International Headquarters
Geneva, Switzerland
(41-22) 7987525

Sydney, Australia
(61-2) 959-3349

Beijing, China
(86-1) 8312211/456

Paris, France
(33-1) 34659685

Hong Kong
(852-5) 257237

Tel Aviv, Israel
(972-3) 492191/93

Milano, Italy
(39-2) 95300268

Tokyo, Japan
(81-3) 473-8444

Gouda, Netherlands
(31) 1820-34144

Singapore
(65) 777-3088

Stockholm, Sweden
(46-8) 330-705

Abingdon, United Kingdom
(44-235) 554-444

Cologne, West Germany
(49-221) 443011

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The 3D Computer Company

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